FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 12 to February 18, 2017 (Week 07)

Overall Summary

- Many influenza indicators such as laboratory detections, outbreaks and hospitalizations have been stable for the past five weeks.
- Widespread or localized influenza activity was reported in 30 regions across eight provinces.
- For a third week in a row, the percentage of tests positive for influenza increased (from 23% in week 04 to 25% in week 07).
- In week 07, 53 laboratory confirmed outbreaks were reported (down from 67 in the previous week); the majority in long-term care facilities and due to influenza A.
- In week 07, the number of hospitalizations reported by participating provinces and territories decreased.
- A(H3N2) continues to be the most common type of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 07, one region in NB reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 16 regions across nine provinces and territories. Localized activity was reported in 24 regions across eight provinces. Widespread activity was reported in two provinces (three regions in QC and two regions in BC). For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 07

Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

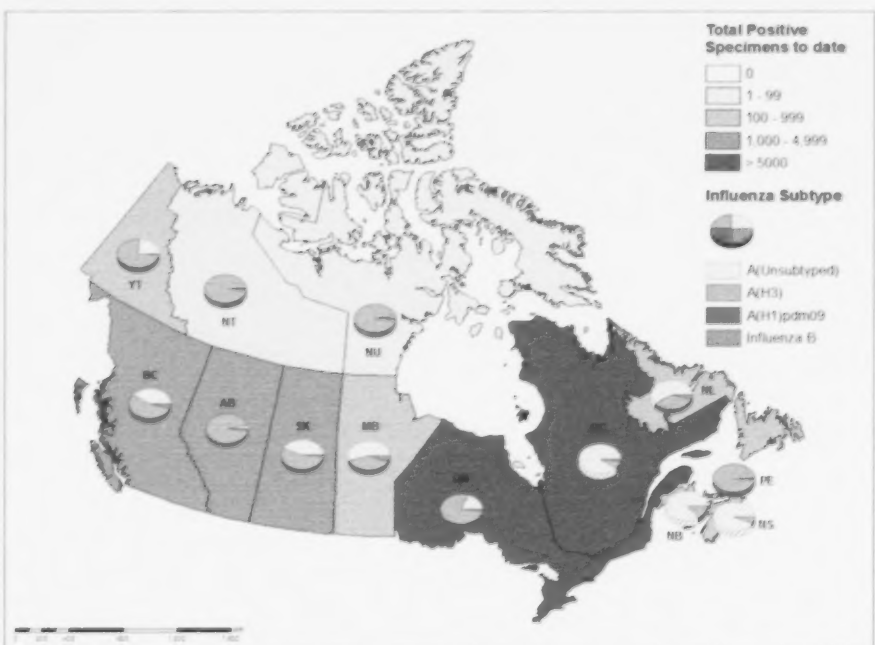
In week 07, the percentage of tests positive for influenza increased from to the previous week to 25%. Peak influenza detections occurred in week 02 at 27%. Since week 02, detections have remained relatively stable (ranging from 23% to 25% in weeks 03 to 07). For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 07

The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

Nationally in week 07, 2,410 positive influenza detections were reported, which is comparable to the 2,472 detections reported the previous week. The provinces of QC, PE, and NL have reported increases in the percent positivity since the national peak in week 02. To date, 25,336 laboratory confirmed influenza detections have been reported, of which 98% have been influenza A. Influenza A(H3N2) is the most common subtype detected, representing over 99% of subtyped influenza A detections (13573/13642). For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report. elevated

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 07



To date, detailed information on age and type/subtype has been received for 17,946 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for almost half of the reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ represented 48% of cases, followed by adults aged 20-64 (29% of cases). In the previous influenza A(H3N2)-predominant season in 2014-15, adults aged 65+ represented 58% of cases and adults aged 20-64 represented 27% of cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 07

Age groups (years)	Week (February 12 to February 18, 2017)					Cumulative (August 28, 2016 to February 18, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	>169	<5	37	132	5	>1541	<5	650	891	57	>1598	x%
5-19	>107	<5	10	97	11	>1726	<5	876	850	72	>1798	x%
20-44	162	0	52	110	9	2671	8	1482	1181	70	2741	16%
45-64	199	0	61	138	11	2898	8	1546	1344	77	2975	17%
65+	727	0	153	574	15	>8705	<5	4122	4583	120	>8825	49%
Total	>1364	<5	313	1051	51	17550	25	8676	8849	396	17946	100%
Percentage[2]	96%	0%	23%	77%	4%	98%	0%	49%	50%	2%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

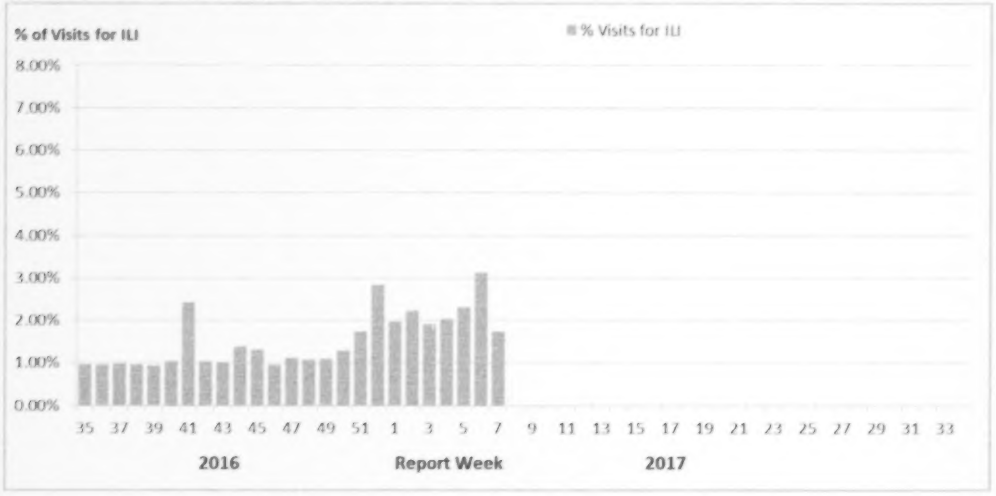
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 07, 1.7% of visits to healthcare professionals were due to influenza-like illness, down from 3.1% in the previous week.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 07: 116



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

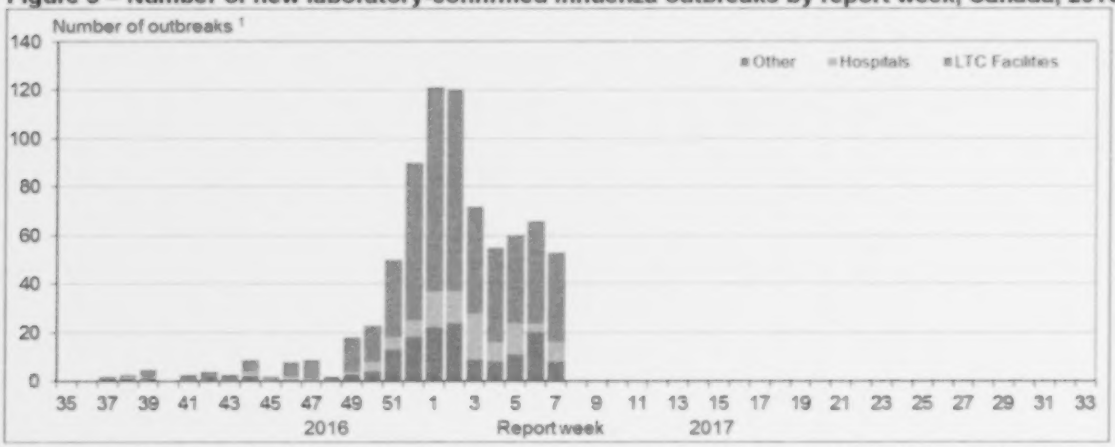
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 07, 53 laboratory confirmed influenza outbreaks were reported (14 less than the previous week). Among the reported outbreaks: 37 in long-term care (LTC) facilities, eight in hospitals and eight in institutional or community (other) settings. Of the outbreaks with known strains or subtypes, nine were due to influenza A(H3N2), 29 were due to influenza A(UnS) and one was due to influenza B.

To date this season, 791 outbreaks have been reported and the majority (67%) have occurred in LTC facilities. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,367 outbreaks were reported, of which 74% occurred in LTC facilities.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 07



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 07, 250 influenza-associated hospitalizations were reported by participating provinces and territories, down from 259 reported in the previous week*. Influenza A accounted for nearly all of hospitalizations (97%). The largest proportion of hospitalizations were among adults aged 65+ (64%). A total of less than five intensive care unit (ICU) admissions and 14 deaths were reported in week 07.

To date this season, 3,973 hospitalizations have been reported, of which 98% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (2247/2256) were influenza A(H3N2). Adults 65+ accounted for 69% of the hospitalizations. A total of 137 ICU admissions and greater than 160 deaths have been reported. The majority of deaths were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 07

Age Groups (years)	Cumulative (August 28, 2016 to February 18, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	283	9	292 (7%)	7	5%	<5	1%
5-19	172	10	182 (5%)	10	7%	<5	1%
20-44	209	5	214 (5%)	12	9%	0	0%
45-64	545	7	552 (14%)	43	31%	27	16%
65+	2700	33	2733 (69%)	65	48%	133	82%
Total	3909	64	3973 (100%)	137	100%	>160	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 07, 25 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. All but three cases were due to influenza A. The number of hospitalizations reported in week 07 is below the six year average for the same time period (Figure 7).

To date this season, 373 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 39% of hospitalizations. Influenza A accounted for 93% (n=345) of the reported hospitalizations, of which 35% (n=131) were influenza A(H3N2) and the remainder were A(UnS). Additionally, 62 intensive care unit (ICU) admissions have been reported, of which the largest proportion (29%) was reported in children 0-23 months. A total of 43 ICU cases reported at least one underlying condition or comorbidity. No deaths have been reported this season.

In 2014-15, the previous influenza A(H3N2)-predominant season, there were 530 hospitalizations, 65 ICU admissions and less than five deaths reported as of week 07.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 07

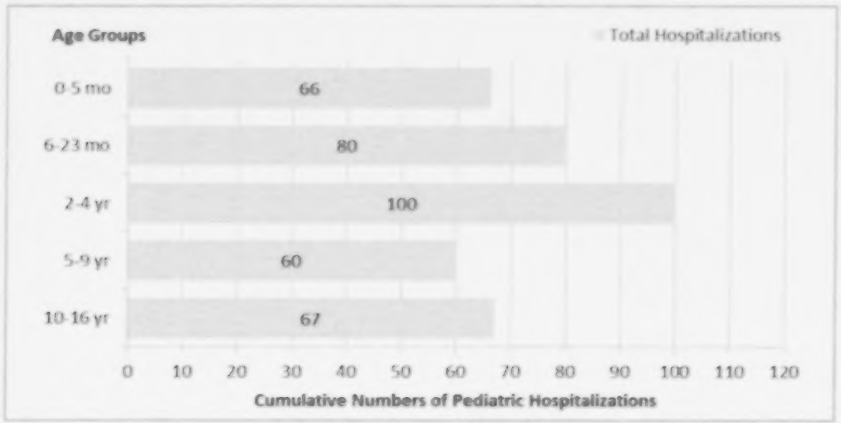
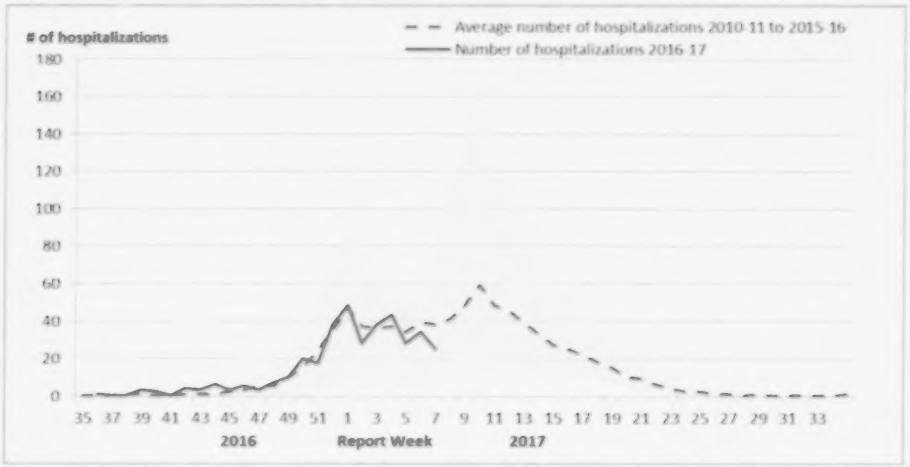


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 07



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 07, 88 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). All but one case were due to influenza A and the majority of cases (77%) occurred in adults aged 65+.

To date this season, 933 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. All but eight hospitalized cases were due to influenza A. Adults aged 65+ accounted for 77% of hospitalizations. To date, approximately 49 intensive care unit (ICU) admissions have been reported. A total of 31 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. Approximately 30 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 84 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 07

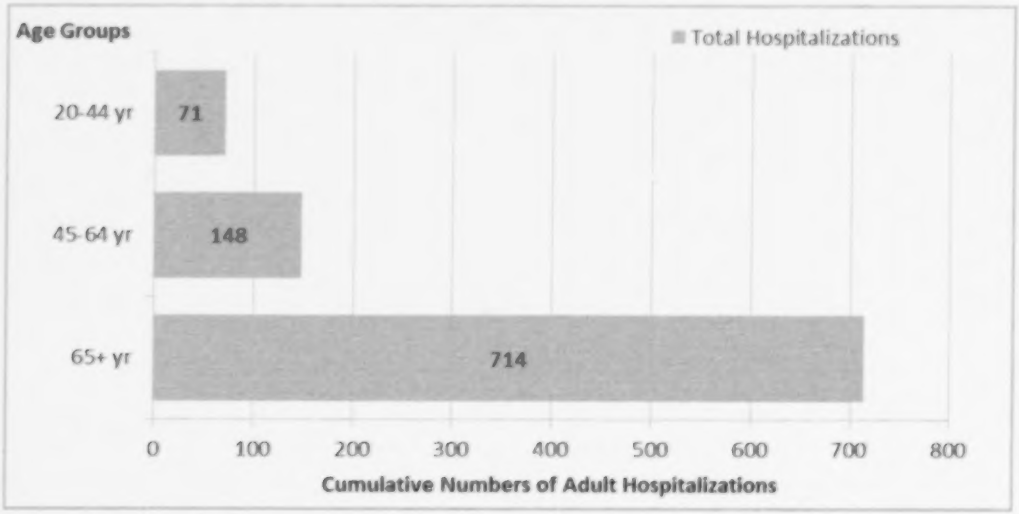


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 07

The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 814 influenza viruses [742 A(H3N2), 19 A(H1N1), 53 influenza B]. All but one influenza A virus (n=741) and all 53 influenza B viruses characterized were antigentically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Thirty influenza B viruses were similar to the strain included only in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 07

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	223	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	518	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 223 influenza A (H3N2) viruses that underwent HI testing determined that 188 viruses belonged to genetic group 3C.2a and 30 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining 11 isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	19	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	23	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	30	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1] The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2] Determined by sequence analysis.
[3] WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4] Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 487 influenza viruses for resistance to oseltamivir and zanamivir and 142 influenza viruses for resistance to amantadine. All viruses were sensitive to oseltamivir and zanamivir. All 142 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 07

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	429	0 (0%)	429	0 (0%)	131	131 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	13	0 (0%)	12	0 (0%)	10	10 (100%)
B	44	0 (0%)	45	0 (0%)	NA[1]	NA[1]
TOTAL	487	0 (0%)	487	0 (0%)	142	142 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.